

Appl. No. 10/801,828
Amdt. Dated Jan. 18, 2006
Reply to Office Action of October 18, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A thin film transistor used in a display device, comprising:

a transparent substrate;

a gate electrode ~~disposed in the substrate, the gate electrode being made of metallic material, the gate electrode being disposed in the transparent substrate;~~

a gate insulation layer disposed on the transparent substrate and gate electrode;

a channel layer disposed on the gate insulation layer;

a source ohmic contact layer and a drain ohmic contact layer arranged on opposite ends of the channel layer;

a source electrode disposed on the transparent substrate and source ohmic contact layer; and

a drain electrode disposed on the transparent substrate and drain ohmic contact layer.

Claim 2 (currently amended): The thin film transistor of claim 1, wherein the surface of the gate electrode is parallel with the surface of the transparent substrate.

Claim 3 (canceled)

Claim 4 (previously presented): The thin film transistor of claim 1,

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wherein the gate electrode comprises Cu, Al, Ti, Mo, Cr, Ta, Nd or any alloy thereof.

Claim 5 (previously presented): The thin film transistor of claim 1, wherein a cross-section of the gate electrode is trapezoidal.

Claim 6 (previously presented): The thin film transistor of claim 1, wherein a cross-section of the gate electrode is rectangular.

Claim 7 (currently amended): The thin film transistor of claim 1, wherein the transparent substrate is made of glass or silicon oxide.

Claim 8 (previously presented): The thin film transistor of claim 1, wherein the gate insulation layer is made of silicon nitride or silicon oxide.

Claim 9 (previously presented): The thin film transistor of claim 1, wherein the channel layer is made of amorphous silicon or polycrystalline silicon.

Claim 10 (previously presented): The thin film transistor of claim 9, wherein the source and drain ohmic contact layers are formed by doping the channel layer.

Claim 11 (currently amended): A display device including a plurality of thin film transistors used to control and drive display material, wherein each of the thin film transistors comprises:

a transparent substrate:

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a gate electrode ~~disposed in the substrate, the gate electrode being~~
made of metallic material, the gate being electrode disposed in the
transparent substrate;

a gate insulation layer disposed on the transparent substrate and gate
electrode;

a channel layer disposed on the gate insulation layer;

a source ohmic contact layer and a drain ohmic contact layer
arranged on the two sides of the channel layer;

a source electrode disposed on the transparent substrate and source
ohmic contact layer; and

a drain electrode disposed on the transparent substrate and drain
ohmic contact layer.

Claim 12 (original): The display device of claim 11, wherein the
display material is liquid crystal.

Claim 13 (canceled)

Claim 14 (canceled)

Claim 15 (canceled)

Claim 16 (canceled)

Claim 17 (canceled)

Claim 18 (canceled)

Claim 19 (canceled)

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Claim 20 (canceled)

Claim 21 (currently amended): A thin film transistor used in a display device, comprising:

- a transparent substrate defining a cavity in an upper face thereof;
- a gate electrode filled in said cavity, the said gate electrode being made of metallic material;

- a gate insulation layer applied upon said transparent substrate covering both said transparent substrate and said gate electrode;

- a channel layer applied upon said gate insulation layer and only covering a central portion of an upper face of said gate insulation layer;

- a source electrode disposed upon one side of said channel layer and further covering a portion of said gate insulation layer wherein said portion is exposed to an exterior before said source electrode is applied thereto; and

- a drain electrode disposed upon the other side of the said channel layer and further covering another portion of said gate insulation layer wherein said another portion is exposed to the exterior before said drain electrode is applied thereto.

Claim 22 (new): The thin film transistor of claim 1, wherein the gate electrode controls the thin film transistor to switch on or off.

Claim 23 (new): The thin film transistor of claim 22, wherein the thin film transistor is a single-gated transistor.

Claim 24 (new): The display device of claim 11, wherein the gate electrode controls the thin film transistor to switch on or off.

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Claim 25 (new): The display device of claim 24, wherein the thin film transistor is a single-gated transistor.

Claim 26 (new): The thin film transistor of claim 21, wherein the gate electrode controls the thin film transistor to switch on or off.

Claim 27 (new): The thin film transistor of claim 26, wherein the thin film transistor is a single-gated transistor.